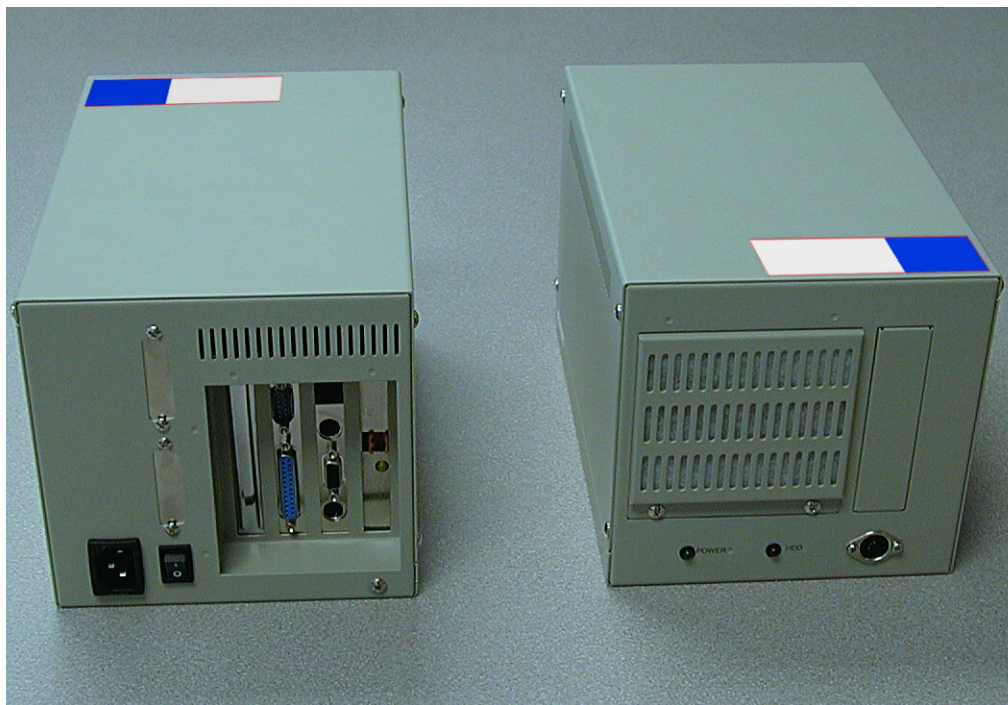


In-Store Information Server (ISIS) Installation and Configuration Guide





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READ ALL INSTRUCTIONS CAREFULLY

If the equipment is not used in the manner specified by the manufacturer, the protection provided by the equipment may be impaired.

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1 In-Store Information Server (ISIS) Installation Instructions

This document covers the mounting, installation, and initial start-up of the ISIS.

This document is targeted at engineers, technicians, and service personnel who are involved in control system installation and start-up using CPC's control system setup in VeriSite, but does not cover station installation. For more information on these topics, refer to the appropriate engineering and programming documentation.

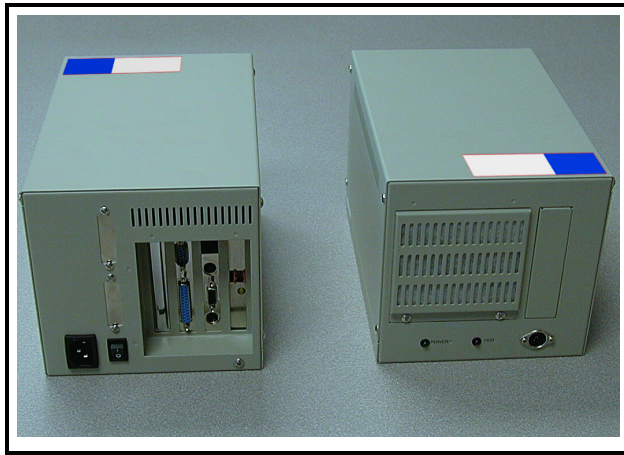


Figure 1-1 - ISIS Front and Rear View

1.1. Overview

The ISIS is an in-store information server that provides a Web-user interface with real-time values to CPC controllers, as well as other energy management systems. It collects data from one store's set of controllers, and can communicate with a supervisory system, off-loading historical data and alarms. The ISIS also supports LonWorks and BACnet devices (contact CPC for details).

The ISIS is a compact, embedded processor platform that uses a hard drive for backup. CPC's VeriSite supports access of graphical views of control system data (via TCP/IP) using a standard Web browser.

1.2. About Windows NT

The base operating system installed on the ISIS is the embedded version of Windows NT[®]. This version is unique in that it does *not* support a traditional desktop environment including keyboard and monitor. In addition, unlike the full version of Windows NT, embedded Windows NT does not directly support user changes to many Windows settings (except IP address).

1.3. Precautions

1.3.1. Safety Precautions

The following items are warnings of a general nature relating to the installation and start-up of the ISIS controller. Be sure to heed these warnings to prevent personal injury and/or equipment damage:

- A 120VAC (or 240VAC for international units) circuit powers the ISIS controller. Disconnect power before installation or servicing to prevent electrical shock or equipment damage.
- To reduce the risk of electrical shock, this equipment has a grounding-type plug that has a third (grounding) pin. This plug only fits into a grounding-type outlet. If the plug does not fit into the outlet, contact a qualified electrician to install the proper outlet. Do not change the plug in any way.
- Make all connections in accordance with national and local electrical codes. Use copper conductors only.
- To reduce the risk of fire or electrical shock, install in a controlled environment relatively free of contaminants.

1.3.2. Static Discharge Precautions

The following items are cautionary notes that will help prevent equipment damage and/or loss of data caused by static discharge:

- Static charges produce voltages high enough to damage electronic components. The microprocessors and associated circuitry within the ISIS controller series are sensitive to static discharge. Follow static electricity precautions when installing, servicing, or operating the system.
- Work in a static free area.
- Discharge any static electricity you may have accumulated. Discharge static electricity by touching a

known, securely grounded object.

- Do not handle the printed circuit board without proper protection against static discharge. Use a wrist strap when handling PCBs. The wrist strap clamp must be secured to earth ground.

1.3.3. General Precautions

Do not remove the ISIS's metal cover—no user-serviceable parts are inside. Removal of the cover will void the warranty.

1.4. Included In This Package

Included in this package you should find the following items:

- An ISIS
- A packing slip, which lists the factory settings for IP address, machine name, and host log on
- ISIS Installation Instructions
- 3-conductor power cord
- Wall-mounting brackets (2)
- Hardware bag including miscellaneous screws, an extra fan filter, and rubber feet for desktop mount
- Optional items (if ordered):
 - NP-UP-OS option: Full Windows NT Workstation software media (diskettes and CD) and license.
 - MDM-NP option: Factory-installed modem. Includes a six-foot phone cable. Note that this option also requires the NP-UP-OS (full NT) option.
 - NP-485 option: factory-installed dual-port RS-485 adapter. Ports are DB-9P (plug) types, which require customer-supplied cables with DB-9S (socket) ends to connect to the ISIS.

1.5. Compatibility

ISIS Compatibility with the CPC REFLECS and Einstein product lines:

Table 1-1 ISIS Compatibility

Controller	Supported Y/N
REFLECS (Standard)	No
RMCC version 2.16 and higher	Yes

Table 1-1 ISIS Compatibility

Controller	Supported Y/N
BCU version 2.20 and higher	Yes
BEC version 4.14 and higher	No
Einstein RX version 1.5F01 and higher	Yes
Einstein BX version 1.5F01 and higher	Yes



NOTE: For any ISIS compatibility questions, contact CPC at 1-800-829-2724.

1.6. Installation and Start-Up

Read through the entire document before beginning the installation procedure.

1.6.1. Unpack the ISIS

Unpack the ISIS and inspect the contents of the package for damaged or missing components. If damaged, notify the appropriate carrier at once and return any damaged components for immediate repair or replacement.

1.6.2. Install the ISIS

Installing the ISIS has four major steps:

1. Physical installation
2. Power Requirements
3. Power up and initial checkout
4. Connect to the ISIS

1.6.2.1. Physical Installation

Tools Required

The following tools and supplies may be required for installation:

- Appropriate nut driver or screwdriver (to install the mounting brackets, if used)
- Small flat-blade screwdriver (for LON connector)

Location for Mounting

- This product is intended for indoor use only. The unit should not be exposed to ambient conditions outside of the range of 0°C (32 degrees F) to 35°C (95 degrees F) and relative humidity outside the range 5% to 95% non-condensing.



NOTES:

- *A clean environment with ongoing minimum exposure to dust is strongly recommended.*
- *During the construction phase, make sure to keep construction and metallic particles away from the ISIS. If necessary, keep the ISIS powered off and covered. For additional information, see Section 1.16.1., Filter Maintenance.*

1.7. Mounting

There are two mounting options for the ISIS: Desktop and Cabinet.

Desktop

Four non-skid rubber feet are provided for desktop mounting. Do not use the mounting brackets if you intend to mount the unit on your desktop. The rubber feet are self-adhesive. Simply remove them from the paper backing and place them at each outside corner edge of the bottom of the unit.

Cabinet

Mount the ISIS in a cabinet, install the mounting brackets on either side of the unit with the sheet metal screws provided in the hardware bag. The mounting brackets are interchangeable.

Observe the following when mounting the ISIS in a cabinet:

- Maintain three inches of clearance on the sides, top, and bottom of the unit to provide adequate ventilation.
- Mount the unit in such a manner as to provide maximum efficiency in cooling. The intake for the fan is located at the front of the unit just above the POWER and HDD LEDs. Air exits the unit through grillwork located to the left and the rear of the unit.
- Mount the unit in such a way as to orient the intake towards the bottom of the cabinet and have airflow up through the unit and exit to the left and top of the cabinet.
- With the ISIS properly oriented in its cabinet, the intake for the fan will be situated towards the bottom

of the cabinet and the connectors will be situated towards the top of the cabinet.

1.8. Power Requirements

The power connector of the ISIS must be connected to a dedicated 120VAC, 60Hz circuit capable of providing at least 1.5 Amperes, plus sufficient capacity for test equipment.

International units must be wired to a 240VAC, 50Hz source of power capable of providing at least 0.75 Amperes, plus sufficient capacity for test equipment.

Domestic ISIS units are shipped with a cord-set that consists of a NEMA-5 15P plug and an IEC 320 connector. If, for some reason, the ISIS is to be directly connected to a power source, use one of the color schemes shown in Table 1-2 on page 3.

Table 1-2 Power Wiring Color Schemes

North America	International
BLACK: Line	BROWN: Line
WHITE: Neutral	BLUE: Neutral
GREEN: Ground	GREEN/YELLOW: Ground

1.9. Connections

Make connections to the ISIS in the following order. For specific details on communications wiring, refer to **Section 1.11., Wiring Details.**

1. Connect the Ethernet cable. The ISIS provides a single auto-sensing 10BASE-T or 100BASE-TX (RJ-45) connector on slot 1. Make this connection to your LAN (local area network).
2. If applicable, make the RS-232 connection. Plug the DB-9 RS-232 cable into COM1, or COM2 if COM1 is occupied.
3. Connect the LonWorks network connection. The ISIS provides a single, two-pin 78-Kbaud free topology connection on slot-4. Make this connection to your Echelon FTT-10 LonWorks trunk.
4. Connect the power cable. Using the 3-conductor power cord supplied with the ISIS, connect the PC plug to the keyed connector

on the back of the ISIS and the standard AC power connector to a dedicated 120VAC or (240VAC) duplex outlet. See **Section 1.8., Power Requirements**. Other connections are not needed at this time. The DIN connector on the front of the unit (if supplied) is a 84-key keyboard port that is not used. The connector above the power switch provides a parallel communications connection. The RS-232 serial ports (COM1 and COM2) and any RS-485 ports (if the ISIS was ordered with an NP-485 option) are used to support serially connected integrations.

1.10. Power Up and Initial Checkout

Once you have installed the ISIS, power ON the unit, allow Windows NT to load, and verify that you can access the device over the network.



NOTES:

- *Windows NT takes approximately 1-1/2 minutes to load on the ISIS.*
- *Once the operating system has been successfully loaded, you can access the ISIS over the network using the Niagara host administration tool (Admin Tool). This is the recommended method to access an ISIS.*
- *An ISIS can also be accessed over a LAN using a networked PC and Windows NT Explorer.*

1.11. Wiring Details

The following section provides details on communications wiring. All wiring is made to ports on the rear of the ISIS. (See *Figure 1-2*).

- Ethernet
- Serial
- Modem (Optional)



NOTE: For power wiring details, refer to *Section 1.8., Power Requirements*. Wiring details for the RS-485 option are in *Section 1.13., RS-485 Option*.

1.11.1. Ethernet

Connection is made via a standard male RJ-45 (8-wire) connector. Using a Category 5 unshielded twisted pair (UTP) cable, connect one end of the cable to the RJ-45 connector on the ISIS (slot 1), and the other end to a hub on the Ethernet LAN. The maximum end-to-end distance from the controller to the hub is 328 feet (100m).

This connection is capable of running at either 10 Mbps or 100 Mbps—it automatically adjusts to either speed. This means the ISIS can exist on the same network with a mixture of 10BaseT and 100BaseTX hardware connected to a smart 10/100 hub capable of adjusting to the devices it supports.

1.11.2. Serial

There are two RS-232 serial ports on the ISIS, labeled COM1 and COM2. These are DTE-type ports, using industry-standard DB-9 male connectors. Typically, a standard “null-modem” cable is used to communicate to another DTE device. A “straight-through” cable is used to communicate to a DCE device, such as a modem.

1.11.3. Modem (Optional)

An ISIS ordered with the MDM-NP option has a factory-installed modem, typically located in slot 3. Connect one end of a standard flat satin telephone cable (4-connector) to the modem’s *top* RJ-11 connector (LINE), and the other end to an analog telephone port.

In the ISIS, this modem uses COM3 (unless an RS-485 Option is installed, in which case it is COM5).

1.12. Figures

1.12.1. ISIS Connector Layout

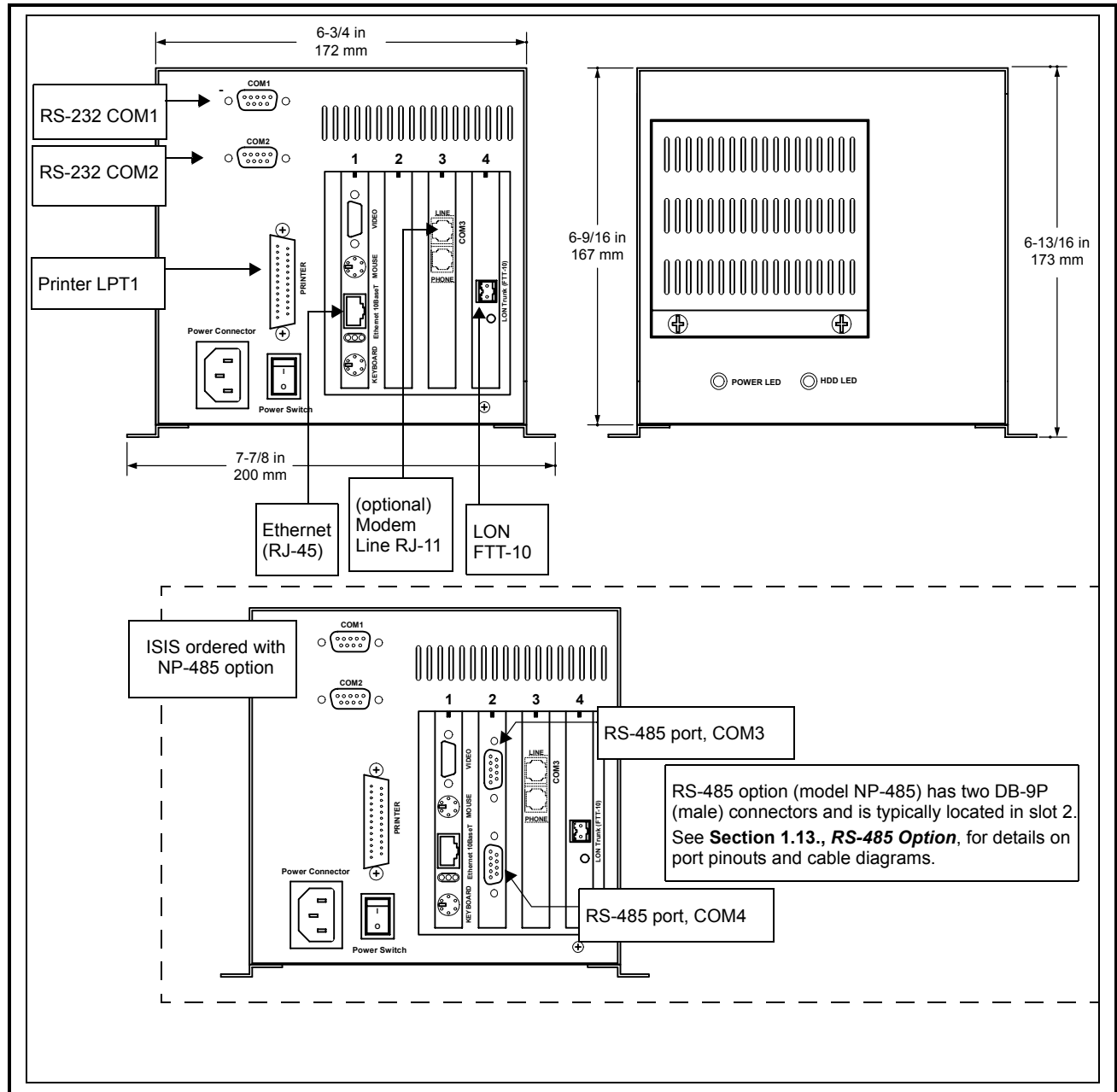


Figure 1-2 - ISIS Dimensions and Connector Layout Details



NOTE: Ports may vary depending on ISIS model.

1.12.2. Mounting Detail

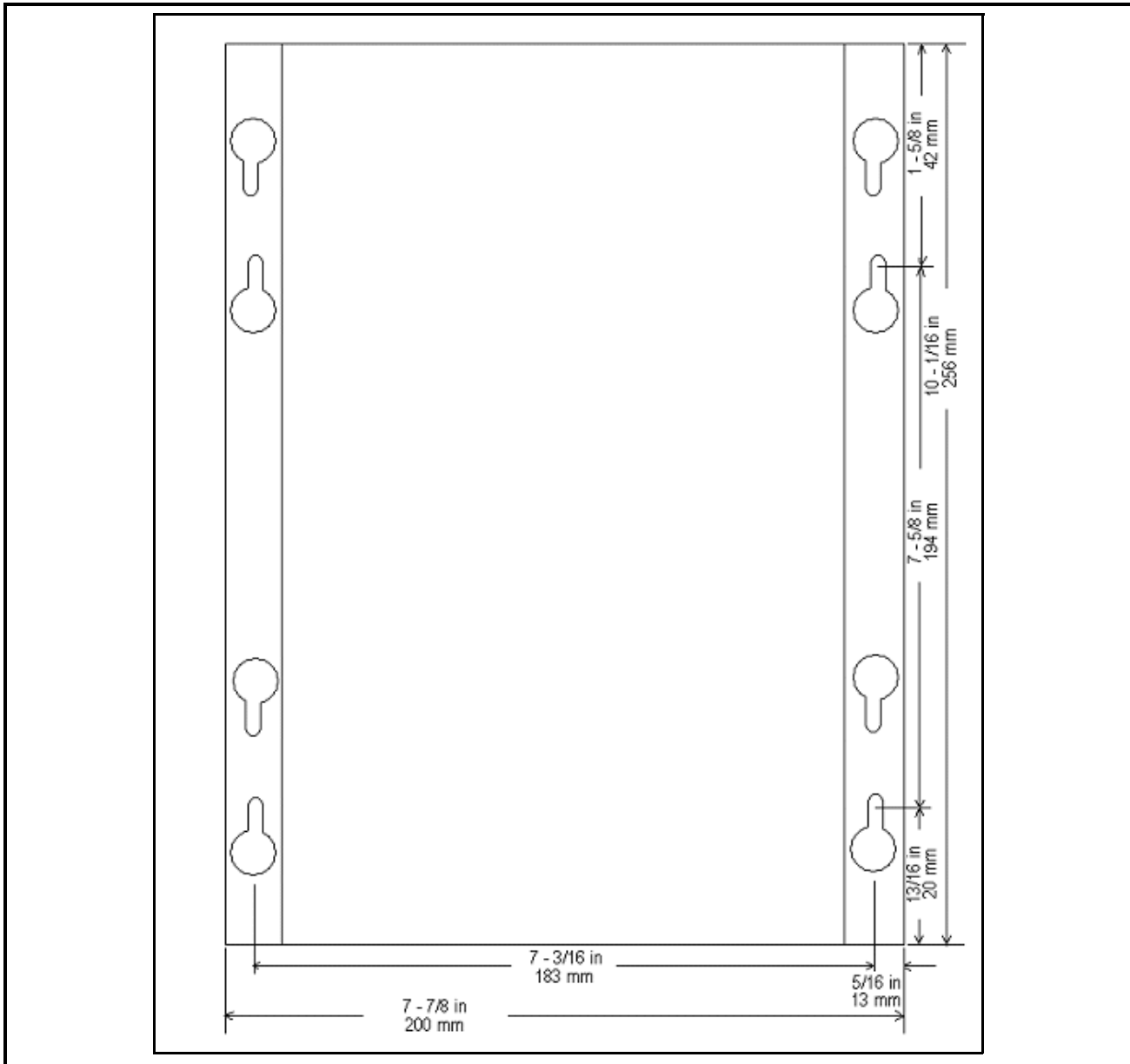


Figure 1-3 - ISIS (top view) RS-485 Option

1.13. RS-485 Option

An ISIS ordered with the NP-485 option has a factory-installed RS-485 adapter, located in slot 2 (Figure 1-2). This is a dual-port adapter with two standard male DB-9 plug (male) connectors.

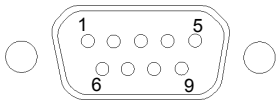
Table 1-3 - COM Port Assignments for RS-485 Ports on an ISIS RS-485 Option

RS-485 Adapter COM Port Assignments	
Top DB-9 Connector	COM3
Bottom DB-9 Connector	COM4

1.14. Wiring Details

Each connector supports both full and half-duplex for RS-485 signals on the DB-9 connectors are given in this table:

Table 1-4 - Pinouts for RS-485 ports on an ISIS RS-485 option (model NP-485).

NP-485 option DB-9 Connector, RS-485 Pinouts			
DP-9P (male) connector	Pin	Name	Description
	1	RD (A)	Receive Data A
	2	TD (B)	Transmit Data B
	3	TD (A)	Transmit Data A
	5	GND	Signal Ground
	9	RD (B)	Receive Data B

1.15. Cable Diagrams

You will need to make cables to connect the DB-9P connectors on the ISIS's RS-485 adapter to the RS-485 device bus. Use the following cable diagrams and the appropriate DB-9S (socket) connectors for attachment to the ISIS ports.

1.15.1. RS-485 Full Duplex

An RS-485 bus wired for full-duplex is commonly known as a "four-wire" bus. Cabling between devices uses five conductors: two twisted-pairs plus a shield (ground) wire.

Use the following cable pinouts to make a cable to connect the ISIS using RS-485 full-duplex:

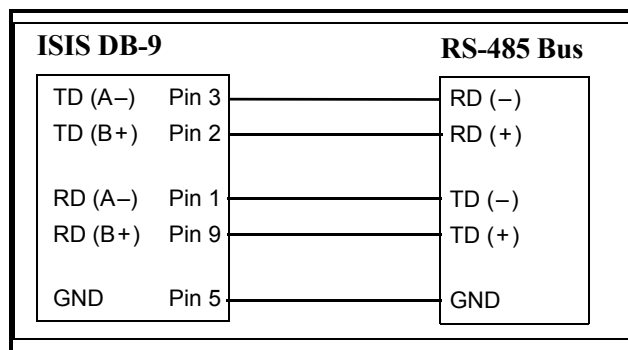


Figure 1-4 - RS-485 Full Duplex Cable Diagram

1.15.2. RS-485 Half Duplex

An RS-485 bus wired for half-duplex is commonly known as a "two-wire" bus. Cabling between devices uses three (3) conductors: a single twisted-pair plus a shield (ground) wire.

Use the following cable pinouts to make a cable to connect the ISIS using RS-485 half-duplex:

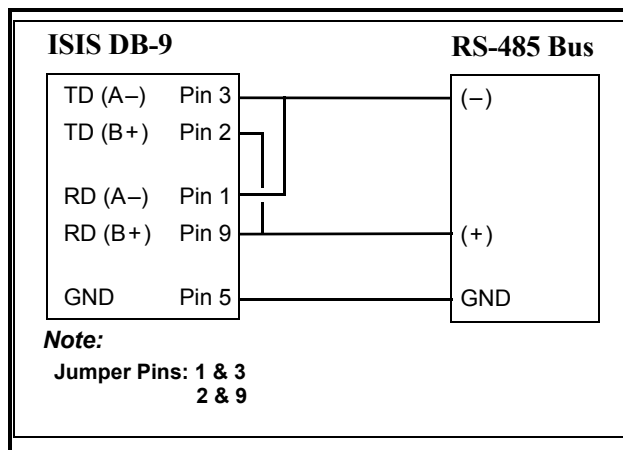


Figure 1-5 - RS-485 Half Duplex Cable Diagram

1.16. Maintenance

Use the following procedures to perform simple maintenance tasks on the ISIS controller.

1.16.1. Filter Maintenance

Following the construction phase, and then on a quarterly (minimum) basis, the air filter on the fan intake should be either:

- Replaced, or
- Cleaned

To clean or replace the air filter, remove the two screws that secure the intake grill. Lift the grill away from the unit and remove the filter. Clean the filter by washing it with warm, soapy water and thoroughly rinsing and drying it before replacing. Replace the filter, then fasten the intake grill securely.

Regular filter maintenance promotes cooler internal temperature and longer equipment life. If the ISIS has Niagara Release 2.2 or higher, its main board temperature under the CPU (and other internal variables) can be monitored by the station running on it.



NOTE: Alternately, after the construction phase is complete, you can remove the ISIS air filter. This is recommended only for installations with a high exposure to heat (average temperature close to 95°F (35°C), and where the ISIS environment remains continuously clean.

1.16.2. Real-Time Clock Battery

The Central Processor Card of the ISIS is equipped with a 3.0VDC Lithium battery. The battery provides back-up power to the Real-Time Clock and the CMOS data area that stores the BIOS setup information. The design life of the battery is 10 years. Replacement of the battery requires removal of the Central Processor Card and re-entry of the setup information.



NOTE: Consult with CPC before changing the battery in the ISIS.

1.17. Replacement Parts

Servicing the ISIS may call for replacement parts. There are three categories of parts:

- Non-replaceable
- Standard Replacement
- Field Replacement



NOTE: For all replacement part numbers, contact CPC at 1-800-829-2724.

1.18. Non-Replaceable Parts

Other than the parts listed in the replacement parts section, there are no serviceable components on an ISIS.

1.18.1. Memory

Any addition, modification, or replacement of memory components requires software configuration and is not a field upgrade.



NOTE: For additional information on modifying the memory capacity of the ISIS, consult CPC for technical support at 1-800-829-2724.

1.18.2. Fuses

An internal 5 x 20 mm, Slo-Blo fuse rated at 1.25A, 250VAC (domestic) or 0.75A, 250VAC (international) is used for power circuit protection. This circuitry is not user-serviceable. If the power circuitry is suspect, contact the factory for replacement (field replacement will void the ISIS warranty).

1.19. Standard Replacement Parts

Standard replacement parts are listed in Table 1-5 on page 9 and can be ordered from stock without restriction. Standard replacement parts cannot be returned for credit and should be disposed of in an appropriate manner

Table 1-5 Standard Replacement Parts

Description	Quantity
Mounting Brackets	Pair
Fan Filter	1



NOTE: For field replacement units and standard replacement part numbers, contact CPC at 1-800-829-2724.

1.20. Certifications

1.20.1. Federal Communications Commission

The device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) this device may not cause harmful interference, and 2) this device must accept any interference received including interference that may cause undesired operation.

The equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause interference, in which case, the user will be required to correct the interference at his own expense.

This product generates and uses energy of about the same frequency as radio and TV broadcasts. Installed correctly, it may interfere with reception of radio and TV broadcasts.

If you suspect this product is causing interference, turn your computer on and off while the radio or TV is showing interference. If the interference disappears when you turn the computer off and reappears when you turn the computer on, something in the computer is causing the interference.

To reduce interference, try these suggestions:

- Change the direction of the radio or TV antenna.
- Move the computer, radio, or TV. For example, if the computer is to the right of the TV, move it to the left of the TV, or move them farther apart.
- Plug the computer into a different electrical outlet than the radio or TV.
- Ensure that all expansion slots (on the back or side of the computer) are covered. Also, ensure that all metal retaining brackets are tightly attached to the computer.

1.20.2. Canadian Department of Communications

This digital apparatus does not exceed the Class B limits for radio noise emissions from a digital apparatus as set forth in the radio interference regulations of the Canadian Department of Communication.

1.20.3.Einstein Connection

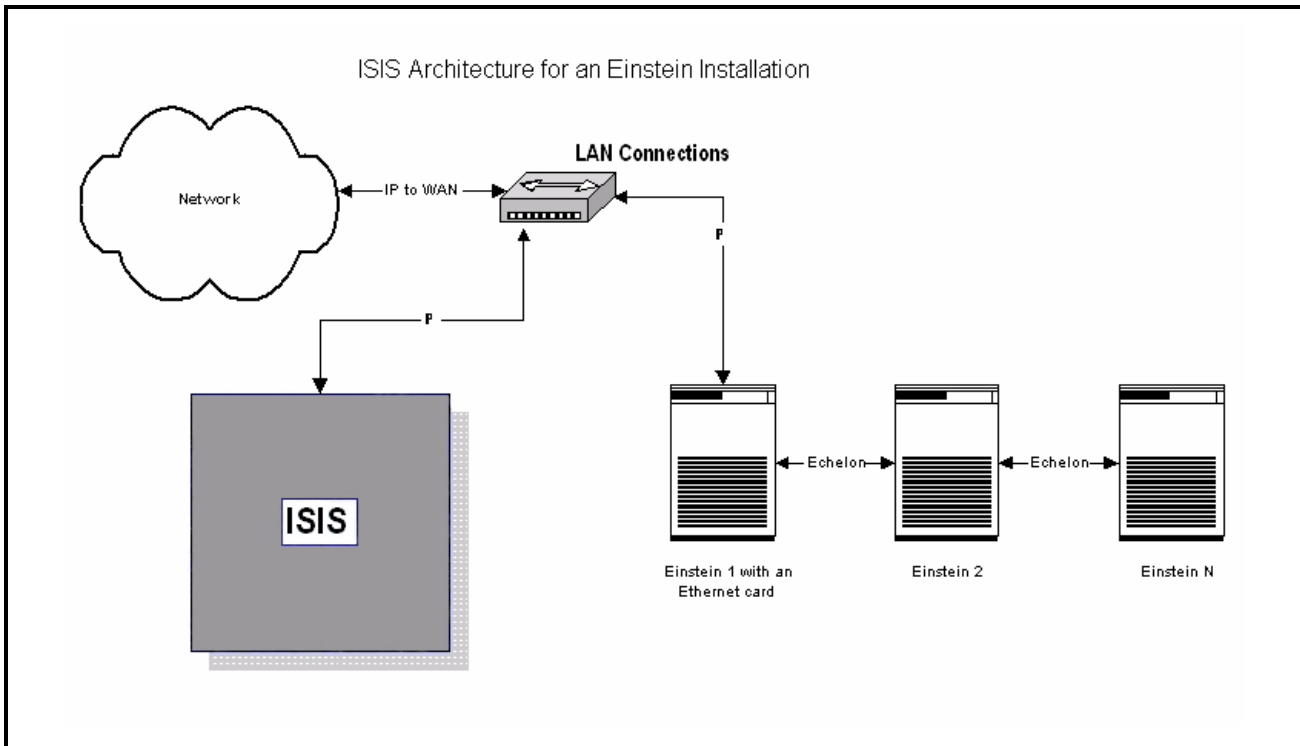


Figure 1-6 - ISIS to Einstein

Refer to **Figure 1-2** for a closer look at connectors and LEDs for the ISIS. To connect an Einstein controller to the ISIS, use an Ethernet connection:

5. Plug one end of the Category 5 unshielded twisted pair (UTP) Ethernet cable into the RJ-45 connector on the ISIS.
6. Plug the other end of the Ethernet cable into an empty port on a LAN hub or switch. The maximum end-to-end distance from the controller to the hub is 328 feet (100m).
7. Plug one end of another Ethernet cable into the RJ-45 Ethernet port on the Einstein that has the PC-104 network card installed.
8. Plug the other end of the Ethernet cable into an empty port on a LAN hub or switch.
9. All additional Einstein units should be connected to the networked Einstein via the Echelon network. (For more information about the Echelon network, see the *CPC Einstein RX Refrigeration Controller User's Guide*)



NOTE: The Ethernet connection must be made prior to applying power to the controller.

1.20.4. REFLECS Connection

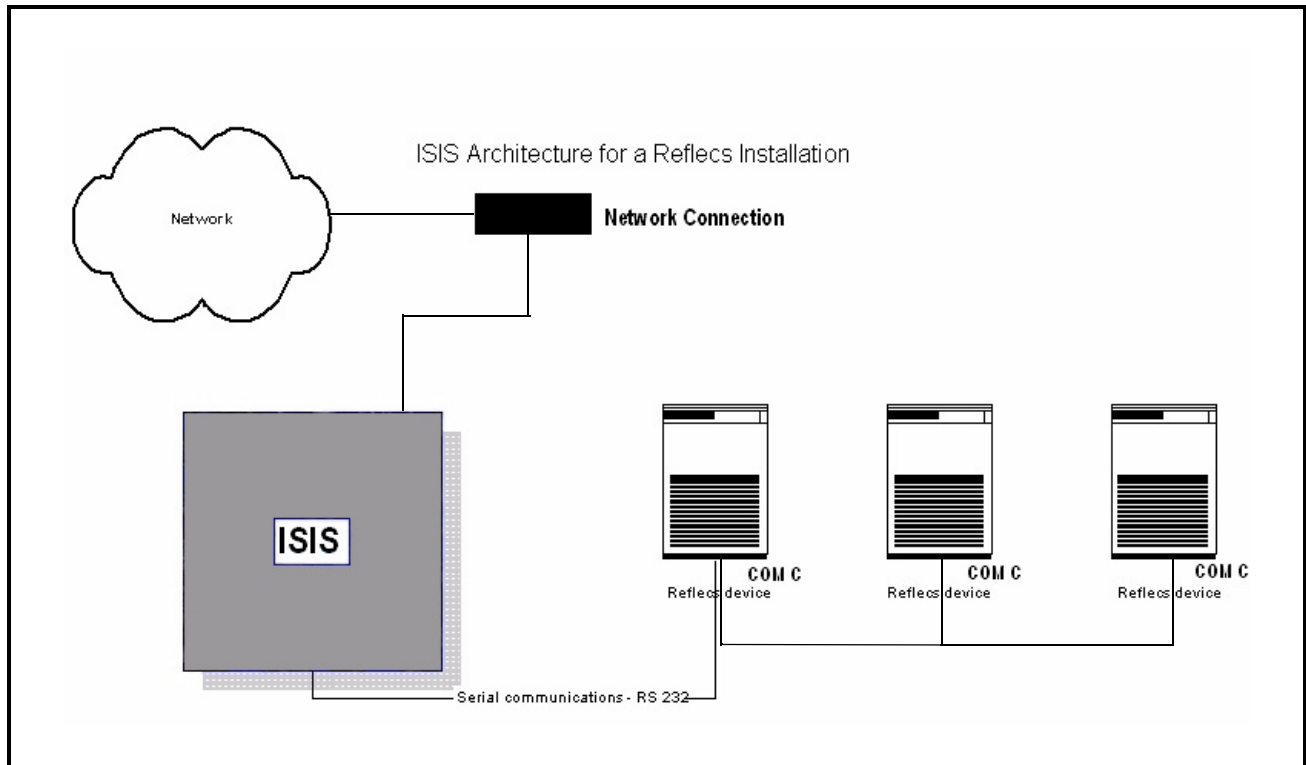


Figure 1-7 - ISIS to REFLECS

Refer to **Figure 1-2** for a closer look at connectors and LEDs for the ISIS. To connect a REFLECS controller to the ISIS, follow these steps:

1. Take the supplied CPC-approved network cable and plug the 9-pin connector into RS-232 COM 1.
2. Plug the 4-pin connector into the COM C port on the REFLECS. (For more information, see the *CPC Refrigeration Monitor and Case Control Installation and Operation Manual*)



NOTE: *The Ethernet connection must be made prior to applying power to the controller.*

